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(71)Applicant : HOYA CORP

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(72)Inventor : YOKOO YOSHIATSU
YAMASHITA TERUO
YAMAKAJI TETSUMA

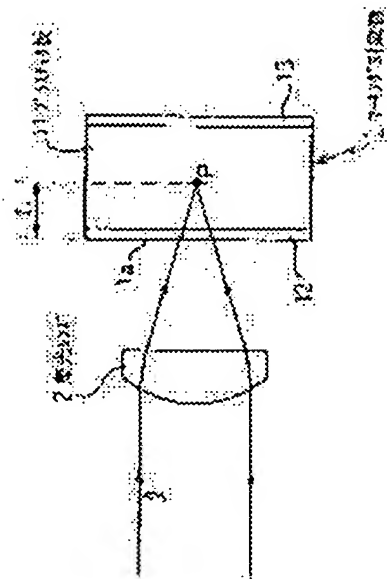
(54) LASER MARKING

(57)Abstract:

PURPOSE: To prevent the lowering of the strength of an object, the deterioration of the discriminating properties of a mark or the damage of a surface by converging a laser beam inside the marking object and putting the mark inside the object.

CONSTITUTION: A laser beam L is converged on a point P separated only by a distance of $Z1$ to the inside from one surface $1a$ of a marking object 1 . The laser beam having energy of one shot and approximately 0.12mJ is oscillated, and the distance $Z1$ is brought to 1.8mm.

Accordingly, since the value of energy density on the surface $1a$ of laser beam is far smaller than the breakdown threshold of the surface, the surface $1a$ being not damaged, the melting, change of properties, etc., are generated near the point P , and the refractive index, transmittance, etc., of the property-changed section differ from other sections, and the section can be discriminated from the outside and function as a mark.



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